

REMARKS

This is intended as a full and complete response to the Office Action dated May 22, 2006, having a shortened statutory period for response set to expire on August 22, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-54 are pending in the application. Claims 1-53 remain pending following entry of this response. Claims 1, 9, 26-51 and 53 have been amended. Claim 54 has been cancelled. Applicants submit that the amendments and new claims do not introduce new matter.

Claim Rejections - 35 U.S.C. § 101

Claims 26-39 are rejected under 35 U.S.C. § 101 because the examiner suggests that claimed invention is directed to non-statutory subject matter. Applicants have amended these claims with this response to be directed to a "computer readable storage medium." Applicants submit that, as amended, claims 26-39 are limited to statutory subject matter. Accordingly, Applicants request that the rejection be withdrawn.

Claim Rejections - 35 U.S.C. § 102

Claims 1-6, 18-20, 23, 26-30, 42-44, 47, 50, and 52 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *MacLeod et al* Pat No. 6,434,545 (hereinafter "*MacLeod*"). Applicants respectfully traverse this rejection.

Regarding claims 1, 18, 26, 42, 50 and 52:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as

is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In this case, *MacLeod* does not disclose "each and every element as set forth in the claims." For example, *MacLeod* does not disclose a "method of managing execution of query operations in a data processing system" that includes "issuing, by a requesting entity, a request to perform a composite query operation defined by at least an initial query operation and a subsequent query operation to be executed against a data repository of the data processing system," as recited by claim 1. Claims 18, 26, 42 50 and 52 each recite a similar limitation. Without explanation, the Examiner follows a recitation of this claim limitation with a citation to *MacLeod* 1:65-67, 7:28-35, 7:43-45, and Figure 10.

Generally, *MacLeod* discloses a "graphical query analyzer" configured to provide users with a display of:

a tree-structure representation of the queries' execution plan (i.e., operations which will be executed) the graphical display of the present invention is designed to pictorially convey a maximum of information relating to query execution. In particular, each query is represented by a tree and each query operation belonging to a query is represented by a corresponding tree node.

MacLeod, 1:65-67 – 2:1-6. A query "execution plan" is generated from a query submitted by a user. Depending on the substance of a query submitted by a user, a query optimizer may be able to generate multiple "execution plans." *MacLeod*, 6:62-66. In such a case, the query optimizer may be configured to select one of the plans.

In contrast, a composite query operation provides a:

a complex data access operation is implemented as a composite query operation, which appears as a single query operation to a requesting entity requesting it. However, the composite query operation is effectively composed of a sequence of single query operations implemented in an order described by one or more encapsulated implementation schemas. In one embodiment, each implementation schema can be represented as a finite state model. Like a single query operation, a composite query operation takes as input a set of fields and values to apply to an

underlying data repository and a series of conditions to govern what portions of the data repository are processed by the composite query operation. Thus, rather than having the requesting entity issue a sequence of fine-grained single query operations connected by appropriate selection logic, the requesting entity can now issue one composite query operation where the appropriate selection logic is already encapsulated within.

Application, ¶ 33. In other words, a composite query operation provides users with an abstraction of multiple single query operations. The composite query operation provides users with a simple query element that may be included in a query. The method of claim 1 includes a request to perform a composite query operation where the composite query operation is "defined by at least an initial query operation and a subsequent query operation." Applicants submit that the cited passages from *MacLeod* disclosing a query optimizer and multiple query execution plans is clearly distinct from the recited claim limitation of a composite query operation defined by at least an initial query operation and a subsequent query operation.

Further, the passages cited by the Examiner support this distinction. First, *MacLeod*, 1:65-67, quoted above, merely provides a general definition for a query "execution plan." As stated, execution plans are generated from a particular query submitted for execution. The other passages cited by the Examiner provide:

The user types the word "go" and the query is thereby submitted to a query analyzer element (370 on FIG. 1), also an application program 36 comprising instructions in memory 22 executed by the processing unit 21. Turning now to FIG. 10, in Step 300 in response to the submission, the query analyzer element 370 performs, or calls upon another application program 36 to perform, the steps shown in FIG. 4 to obtain an execution plan for the submitted query.

...

Turning back to FIG. 10, in Steps 310 and 320, the query analyzer element 370 begins a loop for each operator in the execution plan determined in Step 300.

MacLeod, 7:28-35, 7:43-45. These passages further describe how the query analyzer of *MacLeod* analyzes a query "execution plan" generated for a particular query. As recited by the claims, the composite operation is defined by at least an initial and subsequent query operation; as disclosed in *MacLeod*, multiple query "execution plans"

may be generated from a particular query. Accordingly, Applicants submit that the "query execution plan" disclosed in *MacLeod* is distinct from the "composite query operation" recited by claims 1, 18, 26, 50 and 52.

Further, *MacLeod* does not disclose the recited limitations of executing the initial query operation; determining an operation status of the initial query operation; and managing execution of the subsequent query operation on the basis of the determined operation status. *MacLeod* discloses a "graphical query analyzer" configured to display an analysis of a query and corresponding query execution plan. Regarding the "executing the initial query operation" limitation, the examiner cites *MacLeod*, 7:43-45, quoted above. This passage is part of a description of a "high level flow diagram showing steps performed by one embodiment of the present invention to display a graphical analysis tree." *MacLeod*, 3:27-29. The specific step referenced by the Examiner describes method steps of fetching a statement from a query and displaying a "unique icon corresponding to current operation and branch to parent node." *MacLeod*, Figure 10. Absent from this description of parsing a query, analyzing its content and displaying icons, is a step of actually executing a query, "let alone executing the initial query operation" of a composite query operation, as claimed by Applicants.

Still further, the method of claim 1 recites a particular relationship between the initial query operation and the subsequent query operation. Claims 18, 26, 42, 50 and 52 recite similar limitations. Specifically, claim 1 recites determining an operation status of the initial query operation; and managing execution of the subsequent query operation on the basis of the determined operation status. On this point, the Examiner cites to *MacLeod*, 7:63-65, 8:1-5, and 8:15-25. This material in fact describes how the query analyzer of *MacLeod* may process and display an analysis of multiple queries. For example, one of the passages provides:

However, as the display considered in this example shows, the relevant user has submitted a second query to the query analyzer interface 365. Here the query reads:

Select FirstName, LastName, Extension from Employees Where
EmployeeID=1

Again, the user also types "go," and the second query is submitted to the query analyzer element 370. The query analyzer element 370 accordingly displays a tree structure 210 corresponding to the execution plan associated with the submitted query.

MacLeod, 8:15-25. Figure 5 illustrates a graphical display of the analysis of a first query and of the second query referenced in the material quoted above. Plainly, the analysis of the two queries are independent of one another, and certainly no where does this material disclose multiple queries having the relationship of the initial query operation and subsequent query operation, as recited by the present claims. Accordingly, Applicants submit that the discussion of an analysis of a "second query" in *MacLeod* is distinct from the recited step of managing execution of the subsequent query operation on the basis of the determined operation status for the initial query operation (each as part of a "composite query operation"), as recited by claims 1, 18, 26, 42, 50 and 52.

Therefore, these claims are believed to be allowable, and allowance of these claims is respectfully requested.

Regarding claims 2-6, 19, 20, 27-30, 43, 44, and 47:

Each of these claims depend from one of claims 1, 18, 26, 50, or 52, and are believed to be allowable for the reasons provided above. Accordingly, Applicants respectfully request that the rejection of these claims be withdrawn.

Claim Rejections - 35 U.S.C. § 103

Claims 7-8, 21-22, 24-25, 31-32, 45-46, and 48-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *MacLeod* in view of Pat. No. 5,412,804 to *Krishna* (hereinafter "*Krishna*"). Applicants respectfully traverse this rejection.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or

references when combined) must teach or suggest all the claim limitations. See MPEP § 2143. The present rejection fails to establish at least the third criteria.

Regarding claims 24 and 48:

Claims 24 and 48 each recite providing a composite query operation defining a first and a second query operation to be executed against a data repository of the data processing system and providing a first and a second implementation schema for the composite query operation, each defining a different order of execution of the first and the second query operation. Regarding these limitations, the Examiner cites the same material from *MacLeod* discussed above. Applicants submit, for all the reasons discussed above, that *MacLeod* fails to disclose a composite query operation.

Further, claims 24 and 48 each recite a step of initializing a failure count; ... and incrementing the failure count if the number of query operations indicated by the completion status exceeds a first predetermined threshold. On this point, the Examiner cites the following passage from *MacLeod*:

In database systems which select an execution plan based on efficiency, the system considers the table scans and table joins, as well as the ordering of these, that accomplish the desired objective with use of minimal system resources. Generally, a plan that requires processing a minimal number of database records also uses minimal system resources. Thus, a key principle for selecting the most efficient execution plan is to select the plan that minimizes the number of database records that need to be processed.

MacLeod, 6:17-25. This paragraph makes the fairly obvious observation that when multiple "query execution plans" are generated for a query, a plan may be selected to maximize efficiency by selecting the plan that consumes the minimal resources. No where in this passage is a failure count initialized, incremented or is a determination made that the failure count exceeds a first predetermined threshold, as recited by claims 24 and 48. Accordingly, Applicants submit that claims 24 and 28 are patentable over *MacLeod* in view *Krishna* and respectfully request allowance of these claims.

Regarding claims 2-6, 19, 20, 27-30, 43, 44, and 47:

Each of these claims depend from one of claims 24 and 28 and are believed to be allowable for the reasons provided above. Accordingly, Applicants respectfully request that the rejection of these claims be withdrawn.

Claims 9-12, 14, 16-17, 33-36, 38, 40-41, 51, 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *MacLeod* in view of Pub. No. 2002/0078015 to *Ponnekanti* (hereinafter "*Ponnekanti*"). Applicants respectfully traverse this rejection.

Regarding claims 9, 33, and 51:

Among other things, claim 9 recites "issuing, by a requesting entity, a request to perform a composite query operation defined by at least an initial query operation and a plurality of subsequent query operations to be executed against a data repository of the data processing system; ... and managing, using a composite query operations manager, execution of the initial query operation and the plurality of subsequent query operations on the basis of the selection logic and the plurality of failure conditions. For all the reasons given above with respect to claims 1, 18, 26, 42, 50 and 52, Applicants submit that *MacLeod* fails to anticipate these limitations as suggested by the Examiner. Accordingly, applicants submit that claims 9, 33, and 51 are patentable over *MacLeod* in view of *Krishna* and respectfully request allowance of these claims.

Regarding claims 10-12, 14, 16-17, 34-36, 38, and 40-41:

Each of these claims depend from one of claims 9, 33, or 51 and are believed to be allowable for the reasons provided above. Accordingly, Applicants respectfully request that the rejection of these claims be withdrawn.

Claims 13, 15, 37, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *MacLeod*, *Ponnekanti* in view of *Krishna*. Applicants respectfully traverse this rejection.

Regarding claims 13, 15, 37, and 39:

Each of these claims depend from one of claims 9 or 33 and are believed to be allowable for the reasons provided above. Accordingly, Applicants respectfully request that the rejection of these claims be withdrawn.

Conclusion

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

If the Examiner believes any issues remain that prevent this application from going to issue, the Examiner is strongly encouraged to contact Gero McClellan, attorney of record, at (336) 643-3065, to discuss strategies for moving prosecution forward toward allowance.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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